IN THE SPECIFICATION:

Please revise the paragraph beginning on page 1, prior to line 10 as follows:

This is a divisional application of copending application serial number 09/280,188, filed on ~~3/29/99~~ March 29, 1999, now abandoned. The present application is also related to U.S. Patent 6,559,468, issued on May 6, 2003, which is also a divisional application of Serial No. 09/280,188.

Please revise the paragraph beginning on page 1, line 10, as follows:

The present application is related to the following applications: Serial Numbers 09/280,225 ("Molecular Wire Crossbar Interconnect (MWCI) for Signal Routing and Communications"), now U.S. Patent 6,314,019, issued November 6, 2001; 09/280,189 ("Molecular Wire Crossbar Memory"), now U.S. Patent 6,128,214, issued October 3, 2000; ~~09/280,045~~ 09/282,045 ("Molecular Wire Crossbar Logic"); ~~09/280,049~~ 09/282,049 ("Demultiplexer for a Molecular Wire Crossbar Network (MWCN DEMUX)"), now U.S. Patent 6,256,767, issued July 3, 2001; and ~~09/280,048~~ 09/282,048 ("Chemically Synthesized and Assembled Electronic Devices"), now U.S. Patent 6,459,095, issued October 1, 2002, all filed on ~~even date herewith~~ March 29, 1999. The present application employs the chemical synthesis and assembly techniques disclosed and claimed in ~~09/280,048~~ 09/282,048 (U.S. Patent 6,459,095) and is used in the demultiplexer disclosed and claimed in ~~09/280,045~~ 09/282,049 (U.S. Patent 6,256,767) and the crossbar interconnections disclosed and claimed in 09/280,225 (U.S. Patent 6,314,019).

Please revise the paragraph beginning on page 2, line 29, as follows:

The present inventors have developed new approaches to nanometer-scale devices, comprising crossed nano-scale wires that are joined at their intersecting junctions with bi-stable molecules, as disclosed and claimed in ~~application Serial No. 09/280,048, filed on even date herewith~~ above-referenced U.S. Patent 6,459,095. Wires, such as silicon, carbon and/or metal, are formed in two-dimensional arrays. A bi-stable molecule, such as rotaxane or pseudo-rotaxane, is formed at each intersection of a pair of wires. The bi-stable molecule is switchable between two states upon application of a voltage along a selected pair of wires.

Please revise the paragraph beginning on page 7, line 23, as follows:

In above-referenced related ~~patent application Serial No. 09/280,048, filed on even date herewith~~ U.S. Patent 6,459,095, a basic scheme for chemically synthesized and assembled electronic devices is provided. That ~~application~~ patent discloses and claims a quantum state switch, which comprises an adjustable tunnel junction between two nanometer-scale wires. In accordance with that invention, an electronic device is provided, comprising two crossed wires having nanometer dimensions, provided with functionalizing groups that control conductivity type of the wires. A plurality of such crossed wires may be assembled to provide a variety of different devices and circuits.

Please revise the paragraph beginning on page 15, line 3, as follows:

FIG. 7 presents an embodiment of a crossbar 44 which employs the molecular wire transistors 32, 38 of the present invention. The crossbar 44, which is disclosed and claimed in ~~co-pending application Serial No. 09/280,048, filed on even date herewith~~ above-referenced U.S. Patent 6,314,019, consists of a layer of vertical nanowires 12 and a layer of horizontal nanowires 14. Junctions 18 are formed where the vertical wires 12 and the horizontal wires 14 cross. Distinct electrical nets (one indicated by dashed lines 46, one indicated by heavy solid lines 48, and one indicated by dotted lines 50) may be created in the crossbar 44 as part of an integrated circuit. These separate circuits 46, 48, 50 can cross each other without being electrically connected where a crossbar switch is open, denoted 52 (not conducting current). Alternatively, horizontal and vertical wires may be electrically connected by switches that are closed, denoted 54, 56, 58, 60, 62. Circuits may be confined to segments of horizontal or vertical crossbar wires by controlled oxidation of a nanowire to make an electrically open switch, denoted 64, 66, 68, 70, 72, 74, 76, 78. By using the voltage across the electrochemical cell formed by each pair of crossed nanowires to make and break electrical connections both along wires in a layer (segmented wires) and between wires in two layers (vias), one can create an integrated circuit of arbitrarily complex topology. The wires may connect to an electronic device (e.g., resonant tunneling diode or transistor) (not shown) external to the crossbar array 44. Alternatively two or more nets, e.g., 46, 48 may connect to an electronic device 80 (e.g., resonant tunneling diode or transistor) internal to the crossbar array 44. The electronic

device, whether external or internal 80, may comprise a transistor 32, 38 of the present invention.